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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/822,963	03/21/97	LIU	D ENZ-56

HM22/0825

RONALD C FEDUS
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EXAMINER	
GUZO, D	
ART UNIT	PAPER NUMBER
1636	15

DATE MAILED: 08/25/99

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☑ Responsive to communication(s) filed on 3/15/99.

☑ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three (3) month(s), or ~~thirty days,~~ whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☑ Claim(s) 68-90 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☑ Claim(s) 68-90 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of Reference Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

-- SEE OFFICE ACTION ON THE FOLLOWING PAGES --

★ U.S. GPO: 1996-409-290/40029

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 68-81, 83 and 84 are rejected under 35 U.S.C. 102(b) as being anticipated by Greatbatch et al.

Both applicants and Greatbatch et al. (U.S. Patent 5,324,643, issued 1/28/94, see whole document, particularly Columns 8, 12, 16 and 17) recite vectors (which can be viral or retroviral) which are capable of expressing exogenous nucleic acid sequences in target cells wherein said vector comprises at least one non-deletion modification (i.e. substitution of a polIII promoter which can be from a tRNA gene) with a non-retroviral sequence leading to an alteration of viral vector function and non-native or native terminator sequences. Therefore, Greatbatch et al. teaches the claimed invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 68-90 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 68 (and dependent claims) are vague in the recitation of the phrase "...non-deletion modification with a non-retroviral sequence leading to an alteration or enhancement of viral vector function." since it is unclear what relationship exists between the "non-deletion modification" and the "non-retroviral sequence".

Claim 74 is vague in that there is no antecedent basis for the term "the sequence segments" in claim 73. Also, claim 74 is vague in that the claim recites a sequence segment which is "not related" to promoter/enhancer sequences of a retrovirus. It is unclear what is meant by "not related", i.e. does this term mean other retroviral sequences which are not promoter or enhancer sequences or non-retroviral sequences, etc. Also, claim 74 does not further limit the subject matter of claim 73 in that the claim recites a substitution which can be a retroviral sequence as long as it is "not related" to a retrovirus promoter/enhancer sequence.

Claim 78 is vague in that there is no antecedent basis for the term "said viral vector terminator" in claim 68.

Claim 81 (and dependent claims) is vague in that applicants recite promoter/enhancer regions selected from genes. Promoter/enhancer regions are not genes, but are portions of the regulatory regions of genes.

Claim 85 (and dependent claims) are vague in that claim 85 depends from canceled claim 1.

Claims 86 and 87 are vague in the recitation of the phrase "wherein said providing step or introducing step" since this phrase appears to be out of context with the rest of the claim and is not connected to the other claim language.

Claims 89 and 90 are vague in that the claims recite a nucleic acid construct that has been "modified" by means of an episome or by "transient expression". It is unclear how an episome or transient expression can modify a nucleic acid construct.

No Claims are allowed.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Guzo whose telephone number is (703) 308-1906. The examiner can

normally be reached on Monday-Thursday from 8:00 AM to 5:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Elliott, can be reached on (703) 308-4003. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242 or (703) 305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

David Guzo

August 23, 1999

DAVID GUZO
PRIMARY EXAMINER

08/822963
attachment to
Paper #15

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FILE 'USPAT' ENTERED AT 17:08:55 ON 24 AUG 1999

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  *         U. S.   P A T E N T   T E X T   F I L E               *
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  *  THE WEEKLY PATENT TEXT AND IMAGE DATA IS CURRENT             *
  *  THROUGH AUGUST 24,1999                                       *
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=> s viral vector? and promoter? and non-retroviral

         19297 VIRAL
         80178 VECTOR?
          2090 VIRAL VECTOR?
                 (VIRAL(W)VECTOR?)
         36337 PROMOTER?
        923607 NON
          3294 RETROVIRAL
            59 NON-RETROVIRAL
                 (NON(W)RETROVIRAL)
L1          14 VIRAL VECTOR? AND PROMOTER? AND NON-RETROVIRAL

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1. 5,932,467, Aug. 3, 1999, Retroviral vectors pseudotyped with SRV-3 envelope glycoprotein sequences; Mohammad Ayub Khan, et al., 435/235.1; 424/93.2, 207.1; 435/69.6, 236 [IMAGE AVAILABLE]

2. 5,912,236, Jun. 15, 1999, Broad-spectrum tumor suppressor genes gene products and methods for tumor suppressor gene therapy; Hong-Ji Xu, et al., 514/44; 424/93.1, 93.2, 93.21, 93.6, 93.7; 435/320.1, 440, 455, 456, 458 [IMAGE AVAILABLE]

3. 5,910,434, Jun. 8, 1999, Method for obtaining retroviral packaging cell lines producing high transducing efficiency retroviral supernatant; Richard J. Rigg, et al., 435/7.1, 7.72, 325, 350, 357, 363, 366 [IMAGE AVAILABLE]

4. 5,883,081, Mar. 16, 1999, Isolation of novel HIV-2 proviruses; Gunter Kraus, et al., 514/44; 424/160.1; 435/69.1, 320.1; 530/388.35; 536/23.1 [IMAGE AVAILABLE]

5. 5,869,331, Feb. 9, 1999, Cell type specific gene transfer using retroviral vectors containing antibody-envelope fusion proteins and wild-type envelope fusion proteins; Ralph C. Dornburg, 435/320.1; 530/387.3 [IMAGE AVAILABLE]

6. 5,837,536, Nov. 17, 1998, Expression of human multidrug resistance genes and improved selection of cells transduced with such genes; Kevin T. McDonagh, et al., 435/325, 69.1, 320.1; 536/23.5 [IMAGE AVAILABLE]

7. 5,739,018, Apr. 14, 1998, Packaging cell lines for pseudotyped retroviral vectors; Atsushi Miyanohara, et al., 435/456, 320.1, 325, 463 [IMAGE AVAILABLE]

8. 5,681,746, Oct. 28, 1997, Retroviral delivery of full length factor VIII; Mordechai Bod[redacted] et al., 435/350, 320.1, 366, [redacted]1; 536/23.5 [IMAGE AVAILABLE]

9. 5,679,635, Oct. 21, 1997, Aspartoacylase gene, protein, and methods of screening for mutatons associated with canavan disease; Reuben Matalon, et al., 435/6, 69.1, 91.2, 91.4, 252.3, 254.2; 536/23.1, 24.1, 24.3, 24.33 [IMAGE AVAILABLE]

10. 5,643,756, Jul. 1, 1997, Fusion glycoproteins; Samuel Kayman, et al., 435/69.7, 320.1, 325, 357 [IMAGE AVAILABLE]

11. 5,496,731, Mar. 5, 1996, Broad-spectrum tumor suppressor genes, gene products and methods for tumor suppressor gene therapy; Hong-Ji Xu, et al., 435/320.1; 514/44; 536/23.5 [IMAGE AVAILABLE]

12. 5,470,730, Nov. 28, 1995, Method for producing T.sub.H -independent cytotoxic T lymphocytes; Phillip D. Greenberg, et al., 435/456; 424/93.21; 435/69.1, 69.52, 70.4, 252.3, 320.1 [IMAGE AVAILABLE]

13. 5,252,465, Oct. 12, 1993, Avian erythroblastosis virus vectors for integration and expression of heterologous genes in avian cells; Victor-Marc Nigon, et al., 435/69.1, 239, 320.1, 349, 467 [IMAGE AVAILABLE]

14. 5,162,215, Nov. 10, 1992, Method of gene transfer into chickens and other avian species; Robert A. Bosselman, et al., 800/23; 435/320.1, 948 [IMAGE AVAILABLE]

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=> s viral vector? and promoter? and insertion and substitution?

         19297 VIRAL
         80178 VECTOR?
          2090 VIRAL VECTOR?
                 (VIRAL(W)VECTOR?)
         36337 PROMOTER?
        259923 INSERTION
        125021 SUBSTITUTION?
L2         886 VIRAL VECTOR? AND PROMOTER? AND INSERTION AND SUBSTITUTION?

=> s l2 and non-retroviral?

        923607 NON
          3316 RETROVIRAL?
            59 NON-RETROVIRAL?
                 (NON(W)RETROVIRAL?)
L3           4 L2 AND NON-RETROVIRAL?

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1. 5,932,467, Aug. 3, 1999, Retroviral vectors pseudotyped with SRV-3 envelope glycoprotein sequences; Mohammad Ayub Khan, et al., 435/235.1; 424/93.2, 207.1; 435/69.6, 236 [IMAGE AVAILABLE]

US PAT NO: 5,932,467 [IMAGE AVAILABLE] L3: 1 of 4

ABSTRACT:
Cells producing recombinant retroviral particles are provided. The cells contain a first vector having a coding region encoding retroviral LTRs and a packaging signal under the control of an expression control system, a tRNA binding site located upstream from the packaging signal and origin of second strand DNA synthesis located downstream from the packaging signal. The cells also contain a second vector having a coding region encoding retroviral capsid proteins gag and pol under the control of an

expression control system and a third vector having a coding region encoding a simian type D retrovirus envelope glycoprotein under the control of an expression control system.

2. 5,910,434, Jun. 8, 1999, Method for obtaining retroviral packaging cell lines producing high transducing efficiency retroviral supernatant; Richard J. Rigg, et al., 435/7.1, 7.72, 325, 350, 357, 363, 366 [IMAGE AVAILABLE]

US PAT NO: 5,910,434 [IMAGE AVAILABLE] L3: 2 of 4

ABSTRACT:
This invention provides a method for obtaining a recombinant retroviral packaging cell capable of producing retroviral vectors and the recombinant packaging cell obtained by the method. Also provided is a method of producing recombinant retroviral particles obtained by introducing into the packaging cells obtained according to the methods disclosed herein, a recombinant retroviral vector and propagating the resulting producer cells under conditions favorable for the production and secretion of retroviral vector supernatant. The retroviral supernatants produced by these methods also is claimed herein. This invention further provides a method for screening retroviral vector supernatant for high transduction efficiency and methods for producing retroviral vector supernatant for transducing cells with high efficiency in gene therapy applications.

3. 5,883,081, Mar. 16, 1999, Isolation of novel HIV-2 proviruses; Gunter Kraus, et al., 514/44; 424/160.1; 435/69.1, 320.1; 530/388.35; 536/23.1 [IMAGE AVAILABLE]

US PAT NO: 5,883,081 [IMAGE AVAILABLE] L3: 3 of 4

ABSTRACT:
Novel HIV-2 proviruses, molecular clones, nucleic acids, polypeptides, viruses and viral components are described. The use of these compositions as components of diagnostic assays, and immunological reagents, as vaccines, as components of packaging cells, as transduction vectors, and as gene therapy vectors is also described.

4. 5,681,746, Oct. 28, 1997, Retroviral delivery of full length factor VIII; Mordechai Sodner, et al., 435/350, 7.1, 7.72, 366, 371; 536/23.5 [IMAGE AVAILABLE]

US PAT NO: 5,681,746 [IMAGE AVAILABLE] L3: 4 of 4

ABSTRACT:
Retroviral vectors for [illegible] factor VIII [illegible] transformed cells, [illegible] and methods [illegible] transfected [illegible] disclosed are retroviral [illegible] as are methods for making [illegible] retroviral particles [illegible] polycistronic, or monotropic [illegible] [illegible] full [illegible]